

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
20 January 2005 (20.01.2005)

PCT

(10) International Publication Number  
**WO 2005/005258 A1**

(51) International Patent Classification<sup>7</sup>: **B65B 25/14**  
57/00, G01B 11/00

(21) International Application Number:  
PCT/FI2004/000418

(22) International Filing Date: 1 July 2004 (01.07.2004)

(25) Filing Language: Finnish

(26) Publication Language: English

(30) Priority Data:  
20031066 11 July 2003 (11.07.2003) FI

(71) Applicant (for all designated States except US): **METSO PAPER, INC.** [FI/FI]; Fabianinkatu 9 A, FI-00130 Helsinki (FI).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **LINDBERG, Harri** [FI/FI]; Hämeentie 18 A 6, FI-04400 Järvenpää (FI).

(74) Agent: **SEPPO LAINE OY**; Hämerenkatu 3 B, FI-00180 Helsinki (FI).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

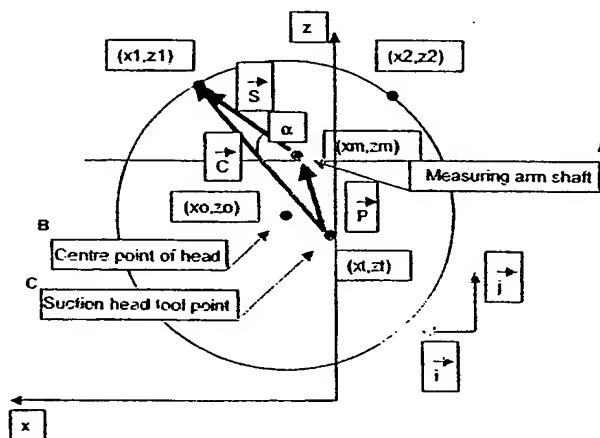
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **METHOD AND ARRANGEMENT FOR MEASURING THE POSITION OF AN END HEAD OF A ROLL**



(57) Abstract: A method and arrangement for determining the position, relative to the grab (1, 2) transporting them, of the end heads used in packing paper, cellulose, and board rolls, when the end head is attached to the grab (1, 2). When measuring, a detector (7) is transported along such a circular curve, which is assumed to be intersected by the circular curve defined by the edge of the end head. the angle position of the detector (7) on the circular curve of its path is measured and the intersection points  $(x_1, z_1; x_2, z_2)$  of the curve travelled by the detector (7) and the edge of the head are detected. The position of the centre point  $(x_0, z_0)$  of the end head is calculated on the basis of a) the radius of the circle travelled by the detector and the position of the centre point  $(x_m, z_m)$  of the circle, b) the position  $(x_t, z_t)$  of the grab's tool point, c) the assumed radius of the end head, and d) the positions  $(x_1, z_1; x_2, z_2)$ , of the detected intersection points. Finally, the position of the centre point  $(x_0, z_0)$  of the end head in the set of co-ordinates of the grab.